

Arsenic mobilization in the flood plains: insights on co-contamination and risk characterization in Lakhimpur district of Upper Brahmaputra Flood Plains, India

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A comprehensive study was carried out in the Lakhimpur district of the upper Brahmaputra floodplain, In-dia to understand the hydrogeochemistry of arsenic (As), its co-occurrence with fluoride (F-) and, As induced health risk implications in the population of the region. Arsenic release in the study area was found to be com-plex, being released by three distinct processes: reductive hydrolysis of iron (Fe) (hydr)oxides, desorption from manganese (Mn) (hydr)oxides, and in minor instances by desorption from Fe (hydr)oxides. Low levels of F- (0.02-0.66 mg L-1) in the groundwater due to high recharge in the region resulted in observation of poor cor-relation with As. The hazard index (HI) value was >1 for both children and adults, the average cancer risk due to consumption of As contaminated water was found to be $5 \times 10-3$ and $21 \times 10-3$ in adults and children respec-tively indicating that the people are likely to suffer from non-carcinogenic impacts with potential carcigoneric risk, children were also found to be more susceptible to As, compared to adults.